

# Solar<sup>®</sup> Turbines

*A Caterpillar Company*

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## Submitted Electronically

June 12, 2003

Docket ID No. OAR – 2002 – 0053  
Direct Final Rule Proposal Amending the Standards of Performance for  
Stationary Gas Turbines

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Solar Turbines Incorporated (Solar) appreciates the opportunity to comment on the direct final rule and proposed rule amending the standards of performance for stationary gas turbines published in the Federal Register on April 14, 2003.

Solar is a manufacturer of mid-range stationary combustion turbines (1-14 MW). Solar's fleet includes over 11,500 combustion turbines in over 90 countries. Our domestic fleet consists of approximately 5800 combustion turbines of which approximately 450 are of lean premix design.

## Summary

In the preamble to the direct final rule and proposed rule, the Environmental Protection Agency (EPA) indicates that the changes included in the direct final rule are meant to codify alternative testing and monitoring procedures that have been routinely approved by EPA. It is our understanding that EPA's intent is that the proposed revisions impose no new regulatory requirements.

As drafted, the direct final rule imposes significant monitoring requirements for "new" turbines (constructed after 5/29/03). For existing turbines the direct final rule leaves a gap by indicating sources "may" use a continuous emissions monitoring system (CEMS) or "may" monitor under a petition. In addition, the direct final rule fails to indicate that turbines with existing permits may continue under the requirements, rather than adopt a new approach.

Solar supports EPA's efforts to streamline the New Source Performance Standard (NSPS) requirements and remove burdensome requirements. However, we do not support imposing significant new monitoring requirements. Specifically, Solar recommends Sections 60.334(c), 60.334(e), and 60.334(f) be removed from the direct final rule.

Solar supports the EPA's proposal to remove requirements to monitor sulfur and nitrogen content for natural gas, EPA's proposal to make correction of emissions to ISO conditions optional for lean premix turbines, and the addition of text to 60.335(b)(2) that allows for testing at four load points in the normal operating range of the gas turbine.

## Specific Comments

### Section 60.334(c)

Solar does not support the provisions proposed in 60.334(c). Section 60.334(c) addresses monitoring for existing NSPS turbines that do not use steam or water injection to control NO<sub>x</sub> emissions.

*(c) For any new turbine that commenced construction, reconstruction or modification after October 3, 1977, but before May 29, 2003, and which does not use steam or water injection to control NO<sub>x</sub> emissions, the owner or operator may, for purposes of determining excess emissions, use a CEMS that meets the requirements of paragraph (b) of this section. Also, if the owner or operator has previously submitted and received EPA approval of a petition for an alternative procedure of continuously monitoring compliance with the applicable NO<sub>x</sub> emission limit under Sec. 60.332, that approved procedure may continue to be used, even if it deviates from paragraph (a) of this section.*

The proposed regulatory language fails to address existing mid-range stationary gas turbines subject to the NSPS. The vast majority of Solar's size class of turbine have neither CEMS, nor an EPA-approved petition for alternative monitoring.

Solar would argue that monitoring go excess emission events should be regulated under the appropriate local/state permitting agency via the construction and operating permit programs and not a NSPS. The revisions to the NSPS should explicitly state that owner/operators of an existing NSPS turbine may continue to employ monitoring requirements (if any) outlined in existing construction, state operating, or Title V permits. EPA also should make clear that permitting authorities should not revisit or revise monitoring requirements in existing permits as a result of

the NSPS revisions. Lacking the clarification, Solar is concerned about possible revisions to current monitoring requirements in existing construction, Title V, and state operating permits. Solar is opposed to any such reopening of permits for existing turbines.

While Solar suspects that EPA has proposed the revisions in 60.334(c) to explicitly allow CEMS for turbines that already require CEMS due to other regulatory requirements, the revisions fail to appropriately address mid-range stationary gas turbines.

As drafted, 60.334(c) would add “new” requirements to “existing” turbines. By definition, a NSPS standard is for “new” sources in a source category. Thus, is it allowable to use a NSPS as a vehicle to subject “existing” sources to “new” monitoring requirements?

Solar requests that EPA withdraw 60.334(c) from the direct final and proposed rules for the Turbine NSPS.

### **Section 60.334(e)**

Solar does not support the proposed changes presented in 60.334(e). Section 6.334(e) addresses monitoring for new NSPS turbines that do not use steam or water injection to control NO<sub>x</sub> emissions.

*(e) The owner or operator of any new turbine that commences construction after May 29, 2003, and which does not use water or steam injection to control NO<sub>x</sub> emissions may elect to use a NO<sub>x</sub> CEMS installed, certified, operated, maintained, and quality-assured as described in paragraph (b) of this section. An acceptable alternative to installing a CEMS is described in paragraph (f) of this section.*

The proposed revision to the NSPS would impose significant new regulatory requirements on many new turbines. Recent installations of mid-range stationary gas turbines have not required the use of a CEMS. CEMS are not common on turbines less than 25 MW in size. Therefore, the proposed revision of 60.334(e) is inconsistent with EPA’s statements that the proposed revisions will impose no new regulatory requirements. turbines.

New turbines typically are permitted at emission levels much lower than the current NSPS emission limitation. For example, new lean premix mid-range stationary gas turbines are typically guaranteed at 25 ppm NO<sub>x</sub>. The NSPS for the same unit would be 150 – 200+ ppm NO<sub>x</sub>. New lean premix turbines will not exceed the NSPS emission limitation thus CEMS type monitoring is not necessary or meaningful.

Solar considers any CEMS requirement driven by the NSPS standard to be costly and unreasonable for mid-range stationary combustion turbines. Historically, per EPA policy, EPA has considered cost in making decisions about the reasonableness of monitoring options. Solar requests that EPA consider the cost burden of the proposed CEMS system on mid-range stationary combustion turbine owners. The cost of a CEMS is the same for a 5 MW turbine as it is for a 180 MW turbine.

Solar strongly urges EPA to remove the proposed CEMS requirement for lean premix gas turbines and adopt periodic testing as is common in local, state, and federal construction and operating permits.

While Solar expects that EPA has proposed the revisions in 60.334(e) to explicitly allow CEMS for turbines that already require CEMS due to other regulatory requirements, the revisions as currently proposed would institute new and costly monitoring requirements for mid-range stationary gas turbines. Therefore, Solar requests that EPA withdraw 60.334(e) from the direct final and proposed rules for the Turbine NSPS.

## **Section 60.334(f)**

Solar does not support the proposed changes presented in 60.334(f). The paragraph addresses continuous parameter monitoring as an alternative to CEMS for new turbines that do not use steam or water injection to control NO<sub>x</sub> emissions. Continuous parameter monitoring is not consistent with monitoring typically required for mid-range stationary gas turbines.

*(f) The owner or operator of a new turbine who elects not to install a CEMS under paragraph (e) of this section, may instead perform continuous parameter monitoring as follows:*

*(1) For a diffusion flame turbine without add-on selective catalytic reduction controls (SCR), the owner or operator shall define at least four parameters indicative of the unit's NO<sub>x</sub> formation characteristics and shall monitor these parameters continuously.*

*(2) For any lean premix stationary combustion turbine, the owner or operator shall continuously monitor the appropriate parameters to determine whether the unit is operating in the lean premixed (low-NO<sub>x</sub>) combustion mode. The parameters described in Sec. 75.19(c)(1)(iv)(H)(2) of this chapter are acceptable for this purpose.*

*(3) For any turbine that uses SCR to reduce NO<sub>x</sub> emissions, the owner or operator shall continuously monitor appropriate parameters to verify the proper operation of the emission controls.*

Solar does not support the continuous parameter monitoring language in Section 60.334(f)(1), (2), and (3). For instance, 60.334(f)(2) infers that the turbine must be operating in lean premix mode in order to be in compliance with the NSPS. However, if a lean premix turbine is not in “lean premix mode” it will still meet the current NSPS levels. Coupled with the fact that the NSPS does not require lean premix turbines, the requirement to determine whether the unit is operating in lean premix mode is not appropriate.

A similar argument can be used for 60.334(f)(3). By definition, the turbine has to be able to meet the NSPS without the SCR. Therefore any monitoring that requires assurance that the SCR is operating properly is not appropriate for the NSPS. Any SCR monitoring requirements would be found in the construction/operating permit for the facility.

In addition, the NSPS should not reference a specific add-on control unless it lists all add-on control options. Any reference to SCR should be changed to “add-on control”. Note that combustion technologies that are not categorized as lean premix, e.g. catalytic combustion, surface combustion, and other emerging technologies, do not fall into any of the categories as outlined in 60.334(f)(1), (2), or (3).

Like the proposed requirement for CEMS (60.334(e), 60.334(f) would impose significant new regulatory requirements on new mid-range stationary gas turbines. Solar finds the proposed revision of 60.334(f) to be inconsistent with EPA’s statements in the direct final rule and the proposed rule that the proposed revisions will impose no new regulatory requirements. While Solar supports the EPA’s goal of allowing owner/operators the flexibility to use data from

continuous parameter monitoring already required for other reasons to demonstrate compliance with the NSPS, Solar does not support a mandatory requirement for continuous parameter monitoring.

Solar assumes that EPA has proposed the revisions in 60.334(f) to explicitly allow continuous parameter monitoring for turbines that already implement such monitoring due to other regulatory requirements. However, the revisions as currently proposed would institute new and costly monitoring requirements for mid-range stationary gas turbines. Therefore, Solar requests that EPA withdraw 60.334(f) from the direct final and proposed rules for the Turbine NSPS.

## **Other Comments**

The following bulleted list suggests additional changes/clarifications to consider when revising the NSPS.

- The definition of “Y” in 60.332 has always said, “The value of Y shall not exceed 14.4 kilojoules per watt hour...”. Suggest the definition be changed to say, “If the turbine heat rate is greater than 14.4, the value 14.4 should be used for Y in this calculation”.
- Suggest in 60.332 (a)(4) and 60.334 (h)(2) the “nitrogen” be changed to “fuel-bound-nitrogen.” Also change in the definition of “N” to denote “fuel-bound-nitrogen.”
- Suggest the word “new” be removed from 60.334(h)(4).